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10/728,273	12/04/2003	Harish Scripad Kulkarni	MS1-1706US	7122
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LEE & HAYES PLLC 421 W RIVERSIDE AVENUE SUITE 500 SPOKANE, WA 99201			EXAMINER ABDIN, SHAHEDA A	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/728,273

Applicant(s)

KULKARNI ET AL.

Examiner

SHAHEDA A. ABDIN

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10, 12, 13, 15, 16 and 18-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12, 13, 15, 16 and 18-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

1. The amendment filed on 06/10/2008 has been entered and considered by Examiner.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2, 4-6, 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Firester (US Patent No: 6611241 B1) in view of Li et al. (NP. IEEE computer Graphics and Applications, see IDS).

(1) Regarding claim 1:

Li teaches a method (in Fig. 1) comprising:

Firester teaches receiving video data (i.e. receiving image data through data bus 105) the video data formatted for display on a large display (i.e. display 100, see abstract) (column 4, lines 20-30).

receiving configuration information (e.g. bit map data) respectively from a plurality of clients (i.e. image processor IP1, IP2, IP3, IP4, note that the image processors IP1-IP4 may be desktop computer PCS, see column 4, lines 31-42), each of the received configuration information including attribute (e.g. brightness of each

pixel) information associated with a small display (i.e. 110) that is part of the large display (column 4, 9-42).

reformatting (i.e. reformatting, decompressing decoding) the video data on an intermediate computer (i.e. 106) for display on a number of the small displays (i.e. multiple monitor or tiles display 110, 130, 102, 140) that are part of the large display (i.e. display 100); and

distributing reformatted video data from the intermediate computer (106) to at least some of the small displays (e.g 110) (column 4, lines 20-42).

Note that Firester teaches receiving video data , but Firester does not disclose that receiving (i.e. image data at display cluster) over a network (system area network) from a network Computer (i.e. console).

However, Li in the same field of endeavor teaches, receiving video data (i.e. image data at display cluster) over a network (system area network) from a network Computer (i.e. console) (page 29, column 2, lines 1-17, page 31, column 1 and column 2, lines 1-6, and lines 16-27, also see the illustration in Fig. 1).

Therefore, it would have been obvious to one of ordinary skill in the art to incorporate the method of receiving video data as taught by Firester in the display system of Li so that the video data could be received over a network from a network computer and the video data could be formatted for display on a large display. In this

configuration the system would provide an immersive and collaborative application with effective data transmission in the display devices for the modular display device (Li, page 29, column 2, lines 24-33).

(2) Regarding claim 2:

Li teaches wherein the distributing (i.e. rendering) comprises distributing the reformatted video data (extracting data) to the clients (i.e. PC's), each of the plurality of clients configured to drive one of the small displays being part of the large display (i.e. tiles in a large display wall) (Page 31, column 2, lines 115-27).

(3) Regarding claim 4:

Li teaches wherein the reformatting (extracting) comprises converting coordinates of drawing commands (i.e. application windows) from large display coordinates (i.e. CRT display or Wall display) into small display coordinates (virtual display i.e. small tiles monitors) (note that user can drag application windows from the regular CRT display into virtual display i.e. substantially display on the display wall, i.e. replaced to the small monitor or tiles, page 34, column 2, 1st paragraph).

(4) Regarding claim 5:

Li teaches wherein the reformatting (extracting) comprises creating multiple drawing commands (i.e. computational alignment at input cluster) from a single drawing command (i.e. instruction from the consol), wherein the single drawing command (instruction from the consol) would otherwise control a drawing that spans

two or more of the small displays (i.e. multiple tiles monitors in the display wall) (note that) (page 30, column 2, paragraph 6, page, 31, column 1, paragraph 4 and 5).

(5) Regarding claim (6):

Claim limitations and subject matter of claim 6 is discussed in claim 1. The claim defers from claim 1 in that the limitation "a processor-readable medium comprising processor executable instruction" additionally recited. These limitations are taught by Firester (see column 16, lines 19-30).

(6) Regarding claim 9.

Note that in claim 6 discussed about a processor-readable medium and Li teaches wherein the reconfiguring the video data comprises : altering (correcting) coordinates of a drawing (i.e. perspective matrix) command (i.e. execution information from projector) to correspond to one of the small display (i.e. small monitors in the large display wall) (note that corrected matrix based on video stream which is received each time from the console to display cluster's PC's, which is executed by projector and the drawing i.e. new pixel forms , page 30, column 2, paragraph 2-3, page 34, column 2, paragraph 3); and creating multiple new drawing commands (i.e. new pixel information for the multiple tiles) from a single drawing command (i.e. information from the display cluster), each new drawing command corresponding to one of the small displays (i.e. multiple monitors or tiles in the large display wall) (page 34, column 1, paragraph 2, column 2, paragraph 1-4). Thus combining the references meet the claim limitations.

(7) Regarding claim 10:

Note that a processor-readable medium as is discussed in Fig. 6, and Li teach wherein the sending (sending extracted data from the display cluster) comprises determining which small displays (i.e. small monitors) to send reconfigured video data to based on which portion of the large display (i.e. screen of the large display) each of the small displays supports (note that each projector render only its own tile portion of the screen space which is based on the corrected or extracted video data, therefore, sending video data based on the portion of the large display) (page 34, column 2, paragraph 3). Thus, combining the references meet the claim limitations.

4. Claims 3 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Firester, Li in view of Ellis et al. (US Patent No; 4562450).

(1) Regarding claims 3:

Note that Firester disclose that determining a large display (i.e. 100) resolution (see column 7, lines 56-67, column 8, lines 1-16) based on the received configuration information from the plurality of clients (i.e. IP1, IP2, IP3, IP4, IP5) (column 4, lines 20-42) (note that image generator or modular section 110 produced image with high resolution (i.e. 1600x 1200) based on the reformatted, and decomposed image data through the clients i.e. IP1, IP2, IP3, and IP4 and); and

Li teaches sending a request to the network computer from the intermediate computer (i.e. display cluster with multiple PC) to transfer the video data from the

network computer (i.e. consol, see Fig. 1) to the intermediate computer at the large display resolution (page 29, column 2, lines 1-17, page 31, column 1, and column 2, lines 1-6, and lines 16-27, also see the illustration in Fig. 1) (note that the console working as a host and video data stream is flowing console to intermediate computer (i.e. display cluster) throw the system area network, sending and request performance must be applied between consol and display cluster to transfer video data),

Firester teaches wherein the received configuration information (i.e. bit map data) from each of the plurality of clients (i.e. IP1, IP2, IP3, and IP4) includes a screen resolution for one of the small displays (e.g. 110) that is part of the large display (100) (column 4, lines 20-42, and column 7, lines 56-67, column 8, lines 1-16). Note that both Firester and Li do not disclose configuration information includes an location and identification.

However, Ellis in the same field of endeavor teaches an identification (address) and location (i.e. position active area) for each of the small displays (i.e. four separate display area) (column 4, lines 30-45, column 12, lines 30-48).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate the method of identification as taught by Ellis in to the display system of Firester as modified by Li so that receiving the configuration information at the intermediate computer that could be including an identification and a location for each of the small displays. In this configuration the system would an enhanced high resolution in the large display device (Ellis, column 4, lines 65-67).

(2) Regarding claim 7:

Note that a processor-readable medium is discussed in claim 6, and Firester teaches that , and the rest of the limitations are discussed in claim 3, see the discussion in claim 3 and claim 6.

(3) Regarding claim 18:

Firester teaches (in Fig. 2) a large display configuration computer comprising:
a configuration to:

receive video data formatted for a large display (i.e. 100) (see column 4, lines 20-30 and abstract);

receive (receiving at large display 100) configuration data (i.e. bitmap data) from a plurality client computers (i.e. image processor IP1, IP2, IP3, IP4, note that the image processors IP1-IP4 may be desktop computer PCS, see column 4, lines 31-42) each having an associated display device (IP2 has display or image generator 110) (see column 4, lines 31-42) , the configuration data (i.e. bit map data) received from each client computer (i.e. IP1-IP4) including a physical location and a display resolution of the diasplay device associated therewith (column 7, lines 56-67 and column 8, lines 1-6) (note that image generator or modular section 110 produced image with high resolution (i.e. 1600x 1200) based on the reformatted, and decomposed image date through the clients i.e. IP1, IP2, IP3, and IP4 and); and

reformat (i.e. reformatting, decompressing, decoding) the video data formatted for the large display (i.e. 100) including dividing the video data into distinct video data

potions that may be individually rendered on the display devices associated with the plurality of client computers (i.e. IP1-IP4) (column 4, lines 15-42).

Note that Li teaches a configuration module (in Fig. 1) configured to receive over a computer network (i.e. system area network), video data (source image or MPEG or video stream) formatted for a large display (i.e. scalable large display wall) (page 31, col 1, paragraph 5 and column 2, paragraph 1-4), and Ellis teaches physical location (i.e. position active area) for each of the small displays (i.e. four separate display area) (column 4, lines 30-45, column 12, lines 30-48). Thus, the references meet the claim limitations.

(2) Regarding claim 19:

Firester teaches the dividing of the video data (i.e. bitmap data) includes converting coordinates (i.e. coordinates of multiple pixel in multiple image generators i.e. pixel-by-pixel that comprise sub image) associated with the video data (i.e. bit map data) into multiple coordinates sets (note that multiple pixels is associated with multiple coordinate sets) (see column 4, lines 1-20).

(3) Regarding claim 20:

Firester teaches the configuration module (bit map data) is further configured to send a coordinate set (i.e. the position of the multiple pixel) of the multiple coordinate set each of the plurality of client computers (i.e. IP1-IP4) (see column 4, lines 1-20) .

5. Claims 12 -13, and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Firester in view of Ellis, and further in view of Cok (US Patent No: 6999045 B2) and Sakai (US Patent No: 5680525).

(1) Regarding claim 12:

Firester teaches a number of small displays (i.e. 110, 130, 120, 140) assembled as a large display (100) (see Fig. 2),

a gateway computer (i.e. 106) configured to reformat (e.g. reformat, decompress, decode) large display video data appropriate for display on the large display into small display video data appropriate for display on the small displays (i.e. 110, 130, 120, 140) depending on how the small displays are assembled (column 3, lines 19-35, and column 4, lines 1-40),

Note that Firester teaches the gateway computer (i.e. server 106) including a configuration module to receive , resolution information about each of the small displays (IP1-IP4), and Ellis teaches identification information, location information (see the discussion in claim 3) but Firester, and Ellis do not disclose that (1) a large display whose size and resolution are scalable by altering the number size of small displays, and (2) calculate the resolution of the large display based on information.

Regarding item # (1):

However, Cok in the same field of endeavor teaches a large display (i.e. tiles display, column 2, lines 40-50) whose size and resolution (see column 7, lines 1-3) are scalable by altering the number size of small displays (column 4, lines 20-30) and

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate the method of size of large display as taught by Cok in to the modular display system of Li so that a large display whose size and resolution could be scalable by altering (changing) the number of small displays (column 4, lines 20-30) . In this configuration the system would have high resolution display device with high optical data transmission.

Regarding item # (2):

Sakai in the same field of endeavor teaches calculate the resolution of the large display based on the information (location= region) and identification (e.g. 2111B) (column 27, lines 52-67, column 28, lines 1--15).

Therefore it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate the method of calculating the resolution as taught by Sakai into the modular display system of Firester as modified by as modified by Ellis and Cok so that the resolution of the large display could be calculated based on the information. In this configuration the system would have high resolution display with better quality (sakai, column 16, lines 53-67).

(2) Regarding claim 13:

Firester teaches a number of clients (i.e. IP1-IP4) each configured to drive a distinct one of the small displays (i.e. 110) with small display video data received from

the gateway computer (i.e. server 105) (column 3, lines 19-35, and column 4, lines 1-40).

5. Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Firester in view of Ellis, Cok, and Sakai as applied to claim 12 and further in view Li and Nishida (US Patent No: 6502107).

(1) Regarding claim 15:

Note that Firester teaches a gateway computer (i.e. 106) being configured to display video data at the resolution of the large display. But Firester does not disclose (1) network computer and (2) gateway computer being further configured to request the large display video data from the network computer at the resolution of the large display,

regarding item # (1):

However, Li in the same field of endeavor teaches a network Computer (i.e. console) (page 29, column 2, lines 1-17, page 31, column 1 and column 2, lines 1-6, and lines 16-27, also see the illustration in Fig. 1).

Therefore, it would have been obvious to one of ordinary skill in the art to incorporate a system that comprises a network computer as taught by Li in the

modular display system of Firestar as modified by Ellis ,Cok, and Sakai so that the modular display system could comprise a network computer and the video data could be received over a network from a network computer and the video data could be formatted for display on a large display. In this configuration the system would provide an immersive and collaborative application with effective data transmission in the display devices for the modular display device (Li, page 29, column 2, lines 24-33),

regarding item # (2):

However, Nishida in the same field of endeavor teaches a gateway computer (i.e. 103) being further configured to request the large display video data (i.e. visual data) from the network computer (i.e. 102) at the resolution (desired resolution) of the large display (0087-0090).

Therefore it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate the method of requesting video data as taught by Nishida into the modular display system of Firester as modified by Ellis, Cok, sakai and Li so that the getaway computer could be configured to request the large display video data from the network computer at the resolution of the large display. In this configuration the system would have an appropriate resolution in the display devices (Nishida, [0014]).

(2) Regarding claim 16:

Li teaches wherein the small displays are selected from the group comprising: flat panel displays (i.e. LCD); computer monitors (i.e. console) ; and projectors (i.e. projectors display cluster's PC's) that illuminate separate portions of a display surface (i.e. each projector renders only its own tiles, page 30, column 1, paragraph 2, page 34, paragraph 4).

6. Claims 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Firester in view of Li and Ellids and further in view of Sakai et al (US Patent No; 5680525).

Regarding claim 8:

Firester teaches wherein the received configuration from each of the plurality of clients (i.e. IP1, IP2, IP3, and IP4) includes a screen resolution for one of the small displays that is part of the large display and Ellis teaches Identification information (see the discussion in claim 3), but Firester, Li and Ellis do not teach determining a large display resolution comprises summing the screen resolutions of the small displays according to a location of the small displays within the large display.

However, Sakai in the same field of endeavor teaches determining a large display resolution comprises summing the screen resolutions of the small displays according to a location of the small displays within the large display (e.g. 2111b) (column 27, lines 65-67, column 28, lines 1--15).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate the method summing (i.e. calculating) the resolution as taught by Sakai into the display system of firester as modified by Li and Ellis so that determining a large display resolution could be summing (calculation) the screen resolutions of the small displays according to a location of the small displays within the large display. In this configuration the system would have high resolution display with better quality.

Response to Arguments

7. Applicant's arguments with respect to claims 1-10, 12-13, 15-16, 18-20 have been considered but are moot in view of the new ground(s) of rejection.

In view of amendment, the reference of Firester (US Patent No: 6611241 B1) has been added.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Inquiry

9. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Shaheda Abdin** whose telephone number is (571) 270-1673.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Richard HJerpe** could be reached at (571) 272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about PAIR system, see <http://pari-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO

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Shaheda Abdin

09/13/2008

/Richard Hjerpe/

Supervisory Patent Examiner, Art Unit 2629

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